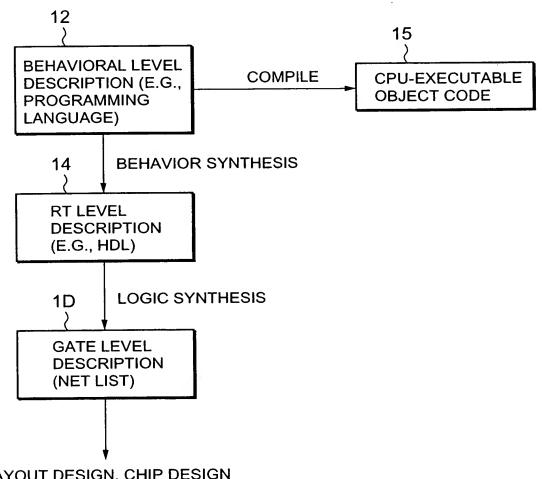
Inventor(s): Takashi TAKENAKA Appl. No.: 10/612,193

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### FIG.1 (PRIOR ART)

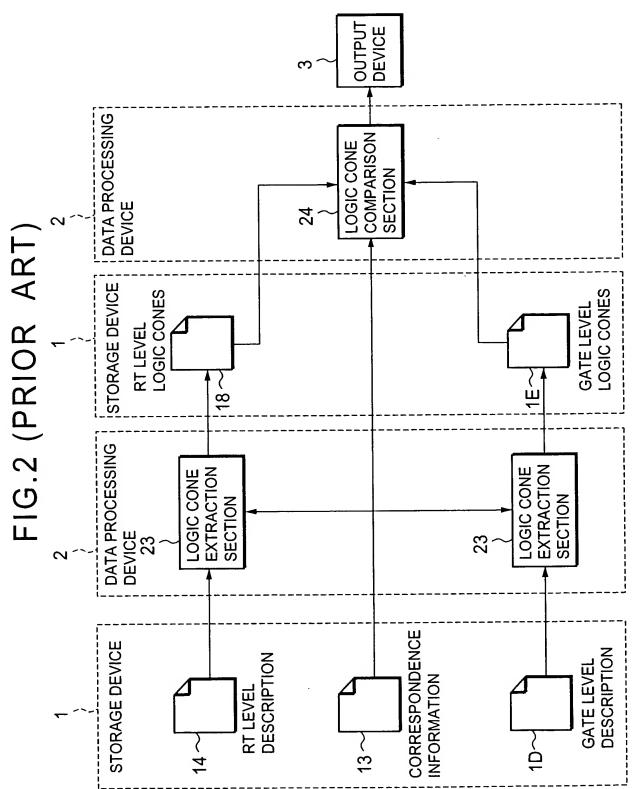


LAYOUT DESIGN, CHIP DESIGN

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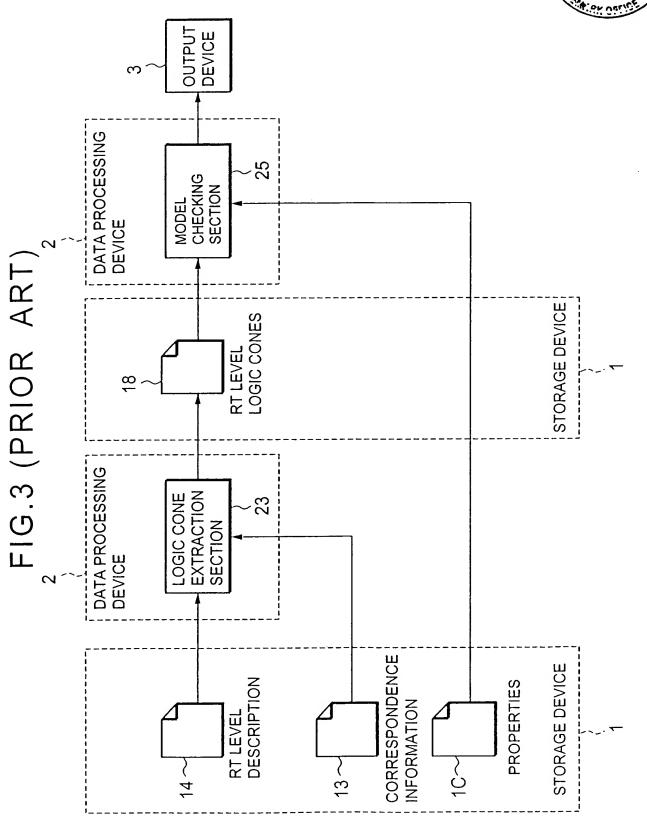
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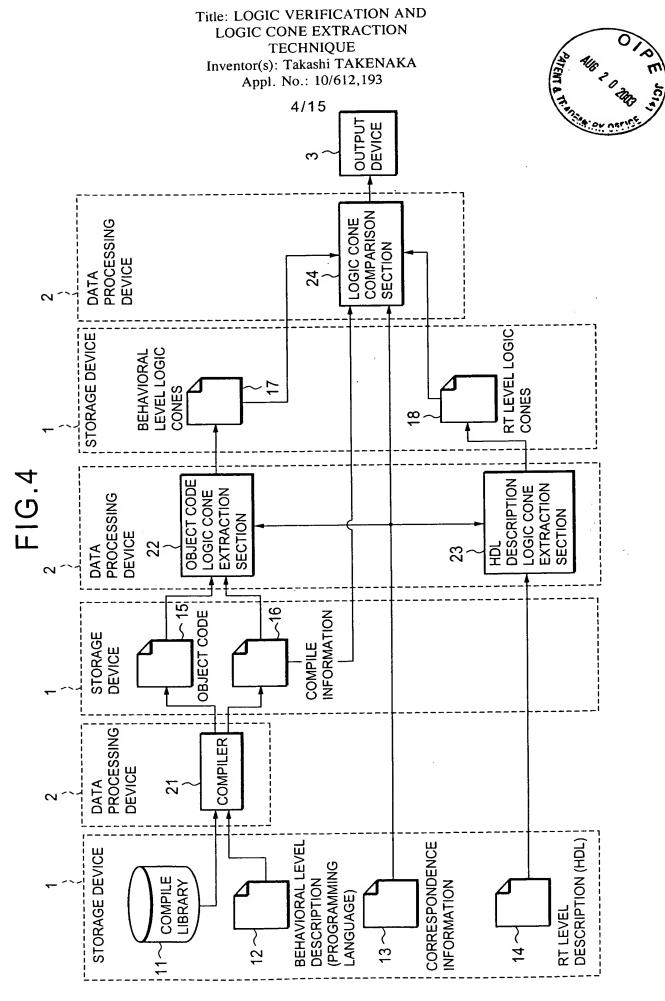




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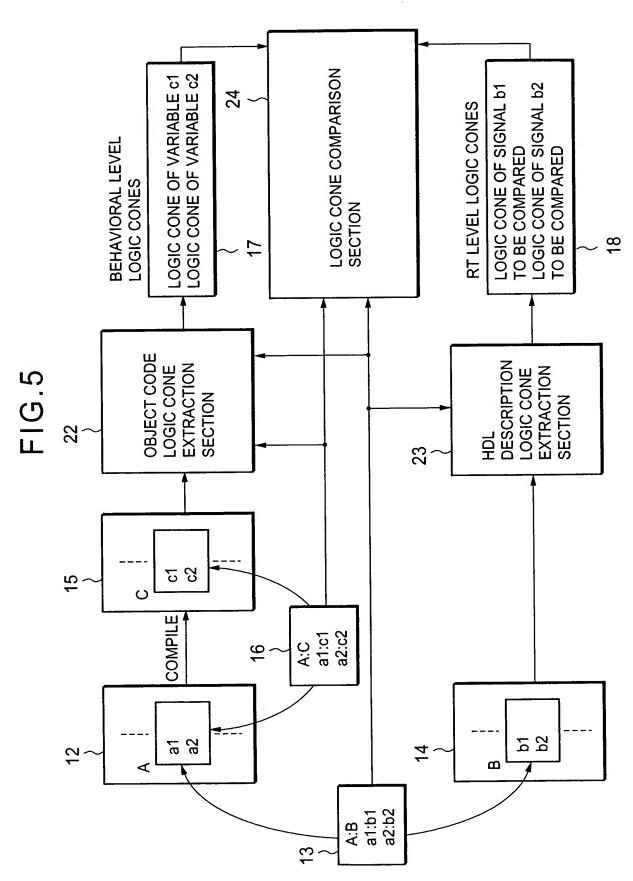




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FIG.6

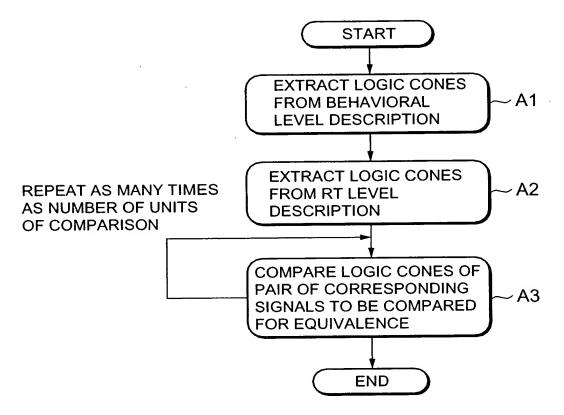
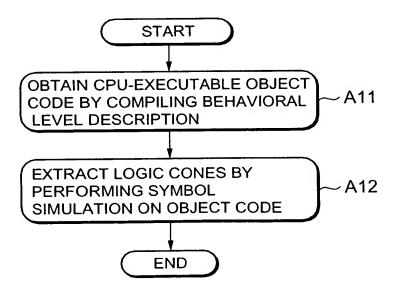
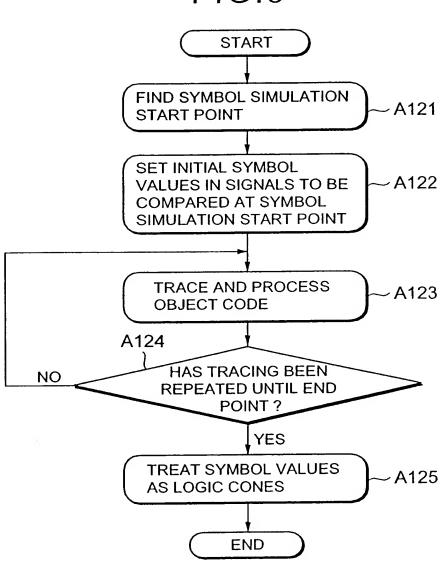


FIG.7



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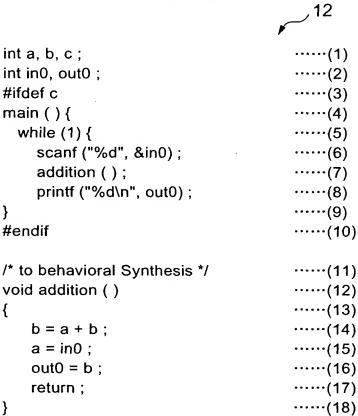




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### FIG.9



### FIG.10

....(1) module addition (in0, out0, CLOCK); input [31:0] in0; ....(2) ....(3) output [31:0] out0; input CLOCK ....(4) reg [31:0] RG01; ·····(5) reg [31:0] RG02; ....(6) ....(7) assign out0 = RG02; always @ (posedge CLOCK) ....(8) begin ....(9) RG01 <= in0: ....(10) RG02 <= RG01 + RG02; ....(11) end ·····(12) endmodule ·····(13)



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### FIG.11

addition: .....(1)
movl a, %eax .....(2)
addl %eax, b .....(3)
movl in0, %eax .....(4)
movl %eax, a .....(5)
movl b, %eax .....(6)
movl %eax, out0 .....(7)

### FIG.12

### EXAMPLE OF CORRESPONDENCE INFORMATION (PARTIAL)

SIGNALS IN C DESCRIPTION	SIGNALS IN HDL DESCRIPTION
in0	in0
out0	out0
а	RG01
b	RG02

### FIG.13

#### EXAMPLE OF COMPILE INFORMATION (PARTIAL)

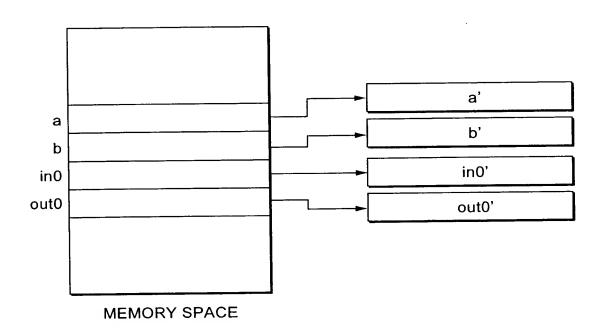
SIGNALS IN C-LANGUAGE DESCRIPTION	STORAGE AREA IN OBJECT CODE
in0	in0
out0	out0
а	а
b	b

FQ5-607

Title: LOGIC VERIFICATION AND LOGIC CONE EXTRACTION TECHNIQUE

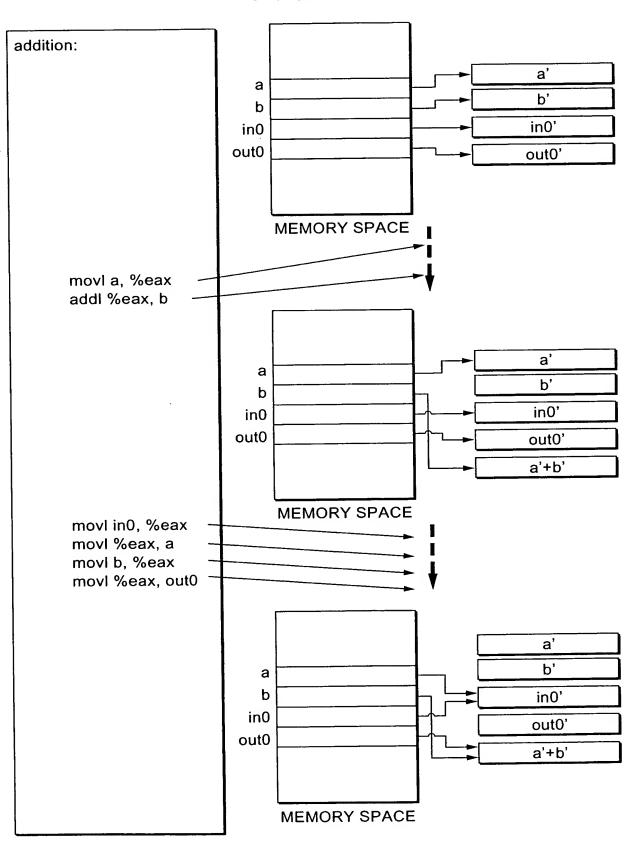
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### FIG.16

#### **EXAMPLES OF LOGIC CONES IN PROGRAM DESCRIPTION**

VARIABLE	LOGIC CONE
а	in0'
b	a'+b'
in0	in0'
out0	a'+b'

### FIG.17

#### **EXAMPLES OF LOGIC CONES IN HDL DESCRIPTION**

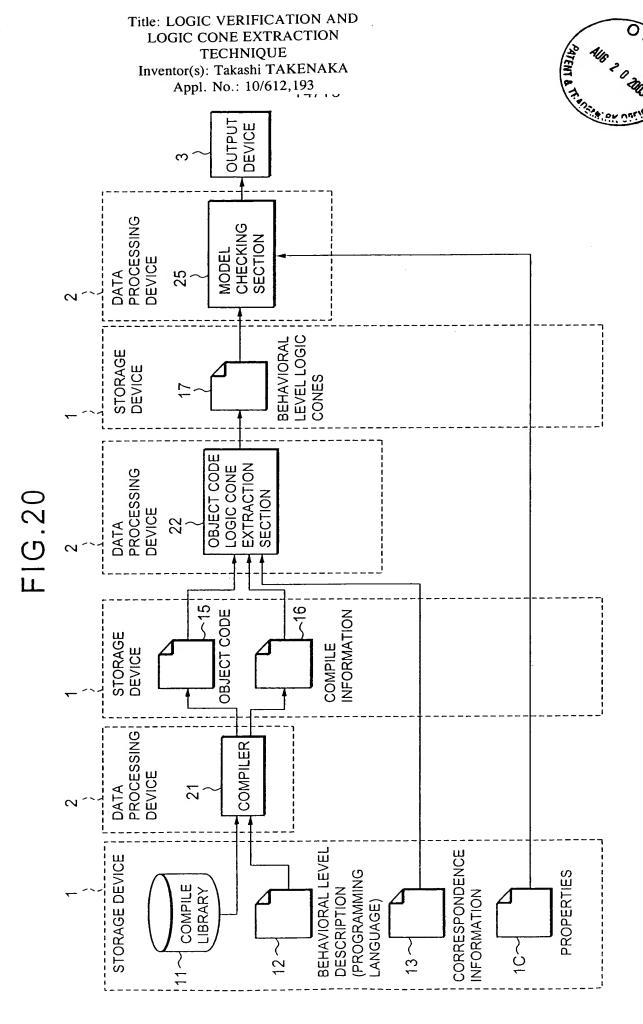
VARIABLE	LOGIC CONE
RG01	in0'
RG02	RG01'+RG02'
in0	in0'
out0	RG01'+RG02'

### FIG.18

## CORRESPONDENCE BETWEEN VARIABLES IN OBJECT CODE AND SIGNALS IN HDL

VARIABLE IN OBJECT CODE	SIGNAL IN HDL
а	RG01
b	RG02
in0	in0
out0	out0

Title: LOGIC VERIFICATION AND LOGIC CONE EXTRACTION **TECHNIQUE** Inventor(s): Takashi TAKENAKA Appl. No.: 10/612,193 13/15 OUTPUT DEVICE LOGIC CONE COMPARISON SECTION DATA PROCESSING DEVICE RT LEVEL LOGIC CONES STORAGE DEVICE BEHAVIORAL LEVEL LOGIC CONES  $\infty$ OBJECT CODE OBJECT CODE LOGIC CONE EXTRACTION DATA PROCESSING DEVICE EXTRACTION LOGIC CONE SECTION SECTION 22A OBJECT CODE INFORMATION OBJECT CODE INFORMATION STORAGE COMPILE COMPILE DEVICE DATA PROCESSING DEVICE COMPILER COMPILER 21 (PROGRAMMING LANGUAGE) BEHAVIORAL LEVEL DESCRIPTION RT LEVEL DESCRIPTION CORRESPONDENCE STORAGE DEVICE (PROGRAMMING COMPILE COMPILE **IBRARY LIBRARY** INFORMATION LANGUAGE) 13~ 14~ 12~ 11A~



Inventor(s): Takashi TAKENAKA Appl. No.: 10/612,193 15/15



